
Appliance Recycling & Accelerated Replacement

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Accelerated Replacement/Early Retirement

What is it?

■ **Accelerated Replacement**

- Encourage consumers to replace old and inefficient appliances prior to the end of their useful life

■ **Early Retirement**

- Ensure that the replaced appliance is put out of service

■ **Example**

- Encourage the replacement of older refrigerators, and ensure that the old ones are not kept in the basement

Accelerated Replacement/Early Retirement *Strategy*

- Industry supports voluntary accelerated replacement and early retirement programs
- Two key elements of an effective program:
 - ensure that the replaced appliances are not kept in service; **and**
 - ensure that the replaced appliances are disposed of properly
- Second element already in place – *appliance disposal and recycling is already established and effective*

Appliance Recycling in North America

Characteristics

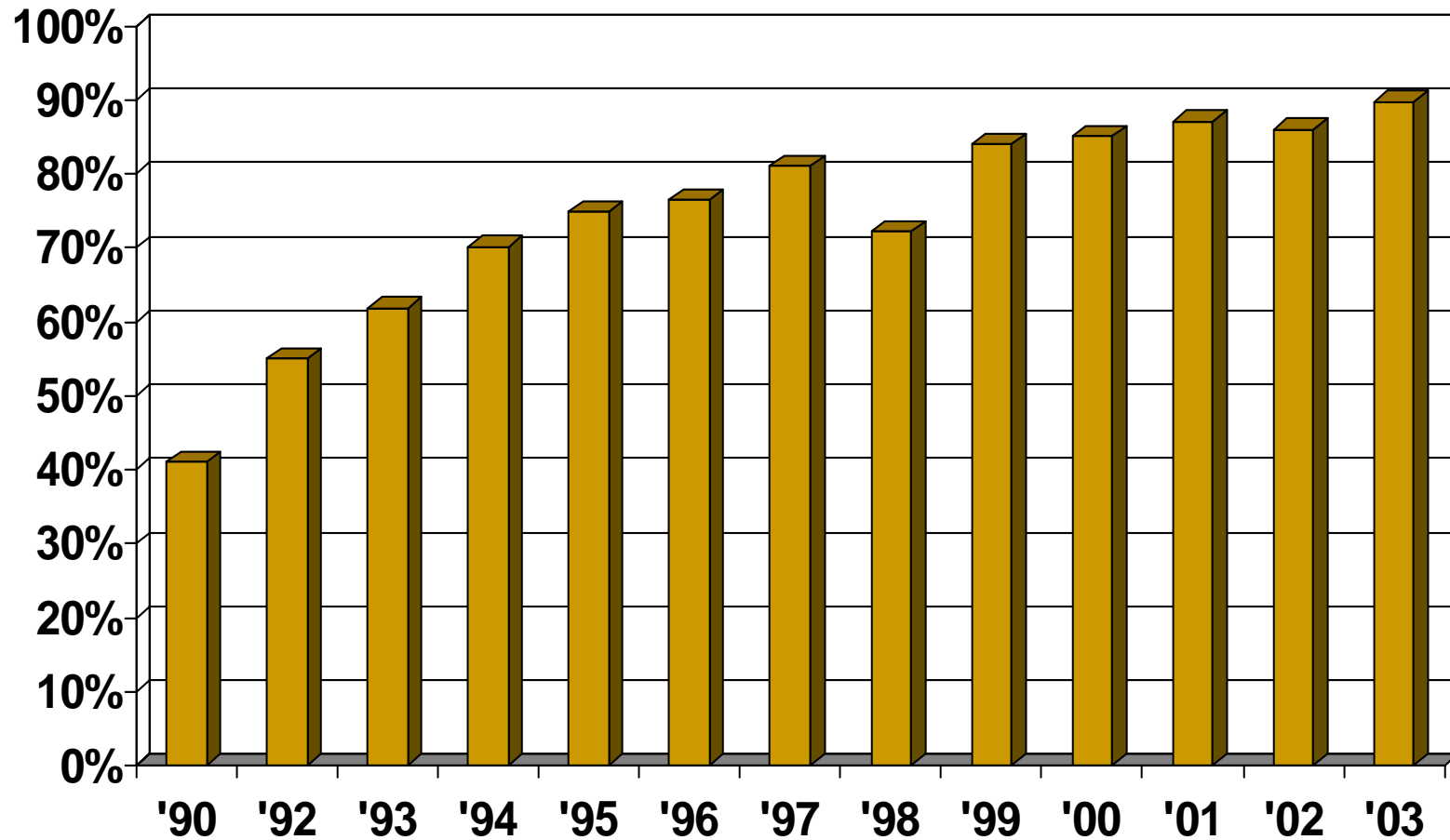
- A successful, economically-driven system
- Estimated that almost 90% of major appliances at the end-of-life enter the recycling stream
- Over two million tons of steel are recycled from appliances each year
- Industry is engaged in research to examine the North American market

Appliance Recycling in North America

Characteristics

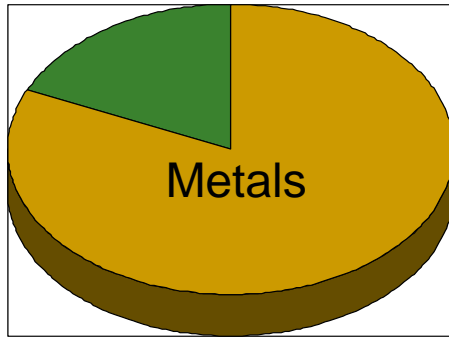
- Success driven by the market for recovered materials, including:
 - ❑ Steel
 - ❑ Copper
 - ❑ Aluminum
 - ❑ Other metals
- Active for over 100 years
- Coordinated through over 4,000 recycling centers in the U.S.
- One of the most successful recycling programs – *rates have doubled over the past 10 years*
- Steel alone saves equivalent energy to electrically power about 18 million households for a year

Recycling Rates for Appliances Continue to Climb

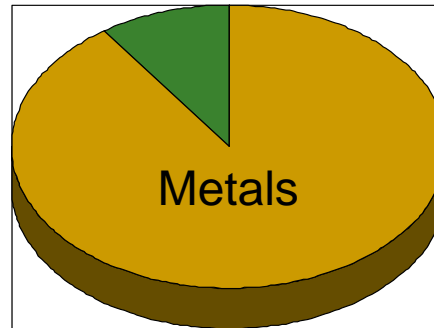


Older Appliances – Rich in Recoverable Materials

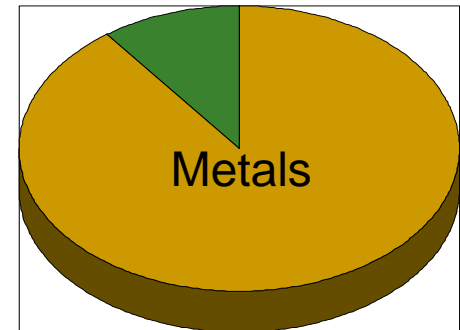
Refrigerators



Ranges



Washers



Appliance Recycling in N. America

How has success been achieved?

- Many municipalities offer appliance recycling
- Retailers typically take older appliances at time of delivery
- Private entrepreneurs find used appliances
- Over 12,000 appliance recycling locations available across the US.
- Work done by Steel Recycling Institute to educate local officials about appliance recycling opportunities
 - www.recycle-steel.org contains database on where to take used appliances

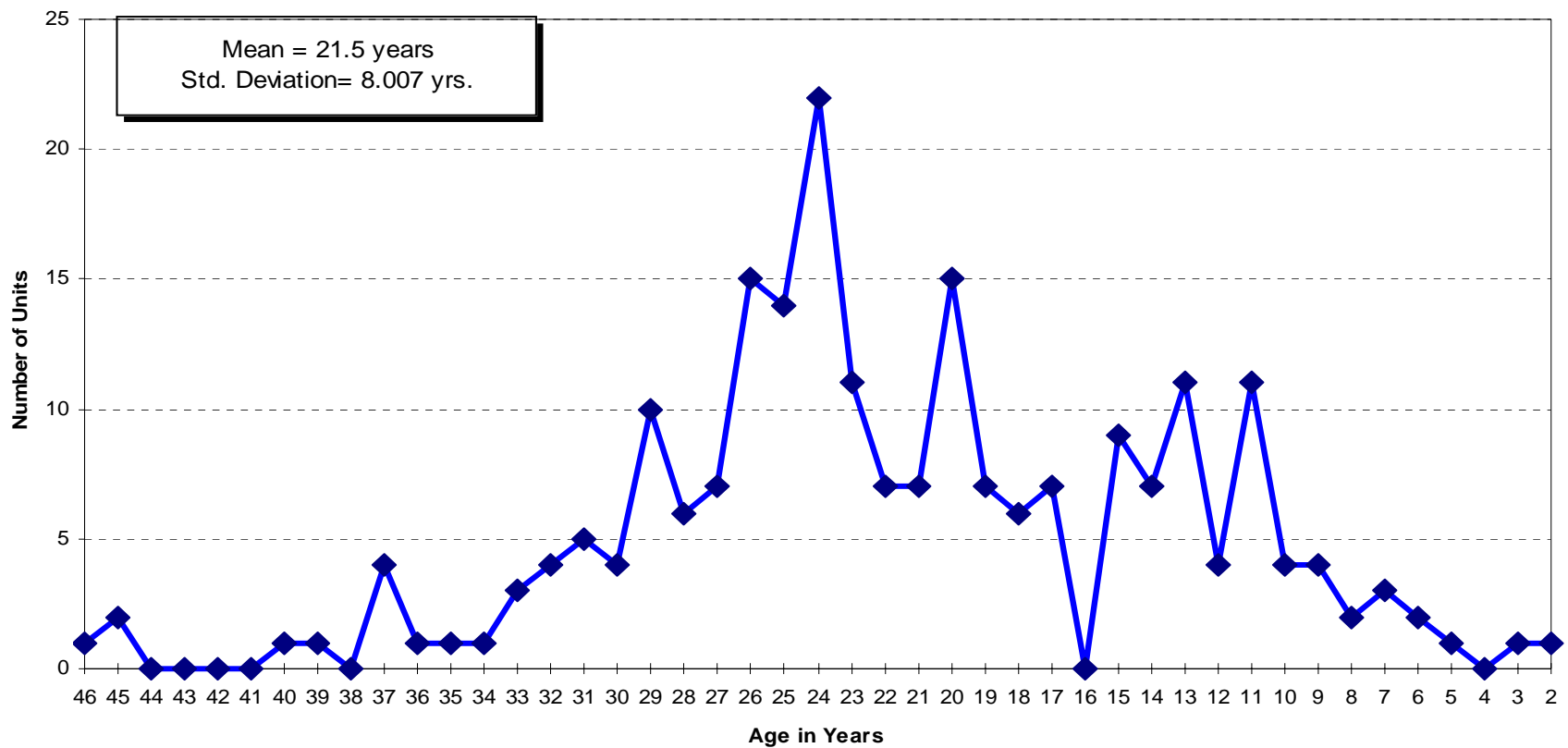
Age of Appliances

- The useful life of appliances can vary by type
- Today's appliances are highly energy-efficient and present opportunities provide energy savings

Age of Appliances in Field

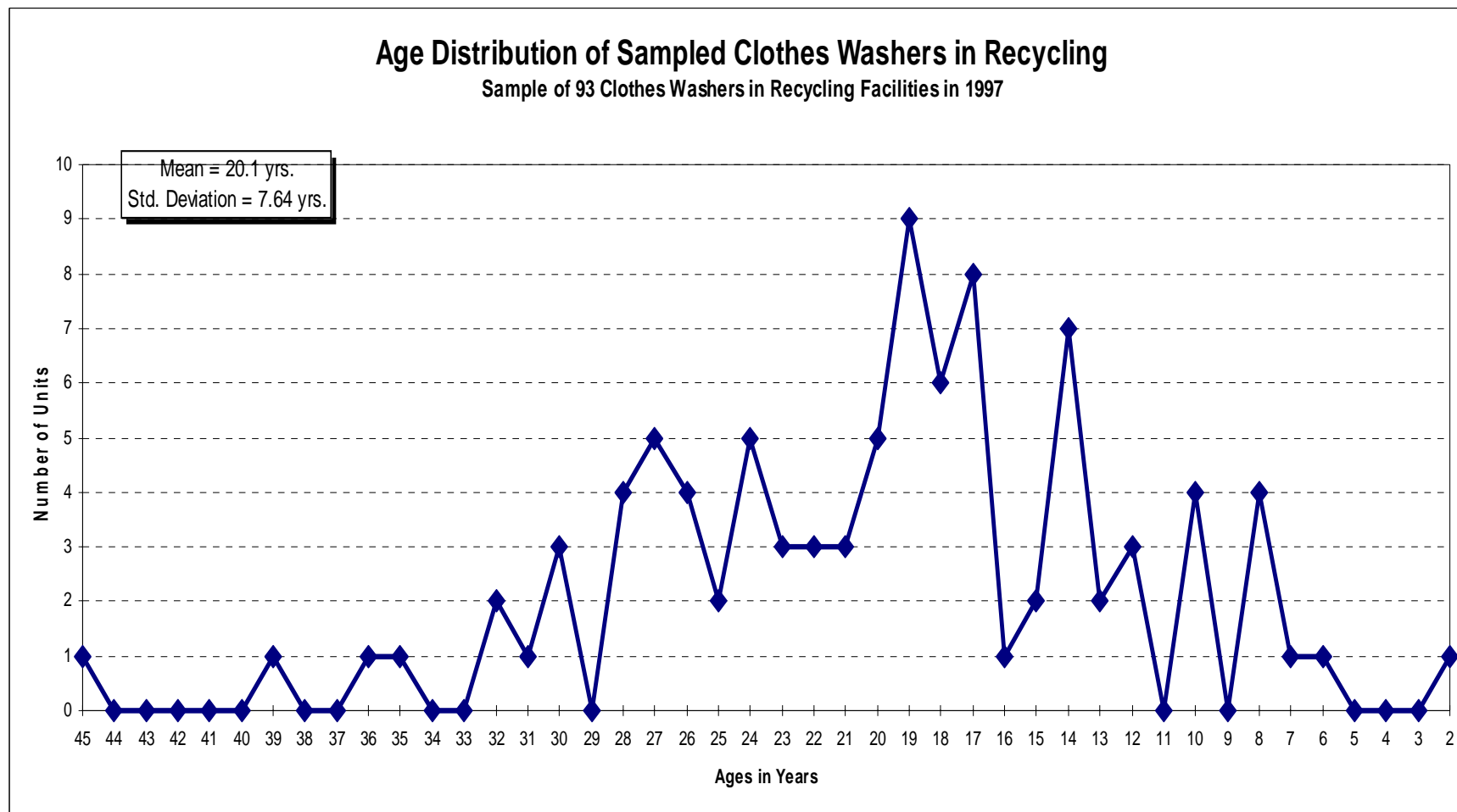
Refrigerators

Age Distribution of All Sampled Refrigerators and Ref./Freezers in Recycling
Sample of 222 Refrigerators and Ref./Freezers in Recycling Facilities in 1997



Age of Appliances in Field

Clothes Washers



Accelerated Replacement/Early Retirement *Benefits*

- Can have a positive effect on the environment, including:
 - ❑ Total energy use
 - ❑ Peak energy use
 - ❑ Water use (i.e. clothes washers)
 - ❑ CO₂ emissions
 - ❑ Natural resource conservation

Accelerated Replacement/Early Retirement *Benefits*

- If assuming average age of refrigerators is 19 years and we can encourage replacement 5 years earlier (i.e. to 14 years)
 - Could save 2 Quads of energy
- With clothes washer, could perhaps save an additional 1.6 Quads.
- Programs to remove second refrigerators from the grid would enhance savings further

Conclusion

- Industry supports Accelerated Replacement and Early Retirement programs
- Effective only if coupled with proper disposal and recycling